Space Weather Forecast

Issued on Sunday, 27 November 2022 at 01:20 Local

This forecast provides a four day assessment of space weather events. The probabilities stated below are for reaching or exceeding the given levels. For more information about space weather impacts please see the Met Office Space Weather Scales https://www.metoffice.gov.uk/weather/learn-about/space-weather/uk-scales

Space Weather Forecast Headline: Chance of Minor Geomagnetic Storm (G1) intervals through the period.

Analysis of Space Weather Activity over past 24 hours

Solar Activity: Solar activity has been Very Low in the past 24 hours, with occasional background class flares. There are currently five sunspots on the Earth-facing disk, all of which are small, simple and apparently stable. No new Earth-directed coronal mass ejections have been observed in available imagery.

Solar Wind / Geomagnetic Activity: Solar wind parametres, as measured by ACE and DSCOVR at L1, were indicative of positive coronal hole high speed stream influences. Solar wind speeds have risen from Slightly Elevated to Elevated-Strong. The interplanetary magnetic field rose from weak to moderate, peaking at 26/1300 UTC, before becoming weak again. The north south component remained weak. Geomagnetic activity was largely Unsettled (Kp 3), but with a single Active (Kp 4) spell during the first period.

Energetic Particles / Solar Radiation: No solar radiation storms were observed.

Four-Day Space Weather Forecast Summary

Solar Activity: Solar activity is expected to remain Low or Very Low, with a chance of isolated Common-class flares and a very slight chance of isolated Moderate-class X-ray flares.

Solar Wind / Geomagnetic Activity: The coronal mass ejection on 24th Nov may give a glancing blow at Earth between days 1-3 (27th-29th). Earth is now in the HSS of CH48/+, with the peak speed likely to have already been experienced and now on a gradual slight decline. The next coronal hole enhancement will likely be from CH49/+, which is a recurrent feature. This is expected at Earth from day 3 (29th), with elevated winds speeds most probable.

Geomagnetic activity is expected to be mainly Unsettled to Active, with a slight chance of G1/Minor storm intervals each day due to either CME or coronal hole HSS effects, should they materialise.

Energetic Particles / Solar Radiation: No solar radiation storms are currently expected during the forecast period.

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Geomagnetic Storms:

Geo-Magnetic Storm Probability (Exceedance)	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Minor or Moderate	G1 to G2	No	25	20	20	10
Strong	G3	No	1	1	1	1
Severe	G4	No	1	1	1	1
Extreme	G5	No	1	1	1	1

Radio Blackouts - X Ray Flares:

X Ray Flares Probability	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	R1-R2 M Class	No	5	5	5	5
Very Active	R3 to R5 X	No	1	1	1	1

Solar Radiation Storms - (High Energy Protons):

Radiation Storms Probability (Exceedance)	Level (cm^{-2} sr^{-1} s^{-1})	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	≥ S1	No	1	1	1	1
Very Active	≥ S3 *	No	1	1	1	1

* S3 ≥ 10 MeV ≥ 1000 pfu and / or ≥ 50 MeV ≥ 10 pfu. (pfu = $cm^{-2}sr^{-1}s^{-1}$)

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